

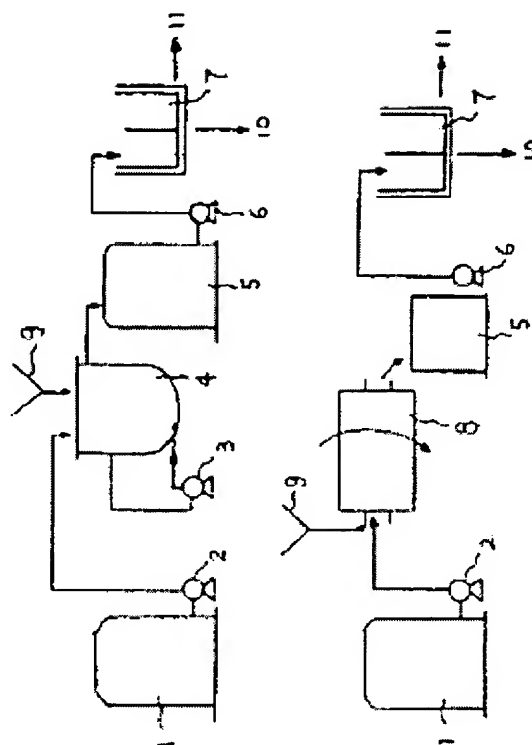
## TREATMENT OF SPENT COPPER ETCHING SOLUTION

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### Abstract of JP63033584

**PURPOSE:** To recover fine dendritic Cu powder in a high yield from a spent Cu etching soln. produced by etching with an aqueous soln. of  $\text{FeCl}_3$  or  $\text{CuCl}_2$  by reducing Cu ions in the spent soln. to metal Cu with metal iron at a specified temp. in a forced circulation type reaction tank or a rotary reaction tank.

**CONSTITUTION:** When a Cu printed board or the like is etched with an  $\text{FeCl}_3$  soln., a spent soln. contg.  $\text{FeCl}_2$  and  $\text{CuCl}$  is produced. The spent soln. in a tank 1 is poured into a forced circulation type reaction tank 4 or a rotary reaction tank 8, iron in a hopper 9 is put in the tank and the soln. is kept at 50-100 deg.C. In case of the tank 4, the soln. is circulated and stirred at 1-20m/min superficial velocity. In case of the tank 8, the tank 8 is rotated at 1-30m/min peripheral speed. Ferric ions and Cu ions in the spent soln. are reduced to ferrous ions forming  $\text{FeCl}_2$  11 and fine dendritic Cu powder 10, respectively. The Cu powder 10 is separated with a centrifugal separator 7 and gaseous chlorine is blown into the remaining  $\text{FeCl}_2$  soln. to convert the  $\text{FeCl}_2$  into  $\text{FeCl}_3$ . The resulting  $\text{FeCl}_3$  soln. is used again to etch Cu.



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